

THE MCGILL DAILY

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Herpes cure?

by Heather Peniuk

Every now and then at an auspicious moment the world at large becomes aware that an important scientific discovery has been made. To the man on the street the discovery comes from a clear sky. He is not aware of the long series of steps, of the slow gradual advances, and of the brilliant intuitive flashes that made the discovery possible.

Such will probably be the case when Kelvin Ogilvie, a prominent organic chemist at McGill, finishes his work on Herpes Simplex II and announces his discovery of a treatment for the disease. The man on the street will appreciate the marketed product but will be unaware of Ogilvie's fascinating intuitive reasoning and the hard work that went into creating the product.

Although there have been some reports on the possibility of a vaccine against herpes, none have yet proven effective. Because a herpes vaccine would likely be most useful as a preventative measure to protect people who do not have the disease, rather than as a treatment for people who already have herpes, Ogilvie expresses doubt that the vaccine would become popular. "Would a person who doesn't have herpes go to a doctor to get a vaccine?" he asks. Most pharmaceutical companies aren't very confident that people will rush out to get a herpes shot when there is a chance the vaccine may cause them to get the disease.

Ogilvie has therefore approached the task of finding a herpes treatment from a different angle. His work has led to the creation of a compound which looks very promising as a treatment for herpes.

Originally from Nova Scotia, Ogilvie's preliminary work on a herpes treatment began at the University of Manitoba in the 1970's, although he was not looking for a herpes treatment at the time. Rather, Ogilvie was looking for a novel way to synthesize RNA and for this purpose he needed to make a new nucleoside structure (a special kind of molecule) as the key to the RNA synthesis. Ogilvie was also aware that adenosine nucleosides often showed biological activity in a test tube but not in an intact animal. This is because the adenosine compounds are generally deaminated by a mammalian enzyme to inactive compounds.

While others were attempting this goal by, "taking anything off the chemical shelf to see if it would work," Ogilvie chose a more logical approach.

He carefully designed a compound to be a key intermediate in the RNA synthesis. Using this compound he observed that the mammalian enzyme only deaminated compounds that were in a certain structural position. This being a very important finding, Ogilvie published the observation. Ogilvie made a second intuitive observation which he did



DAILY/R. GERARD MARTIN

not publish, "I thought I now knew how to design a molecule that would be active against micro-organisms such as viruses without affecting animal cells."

His reasoning goes as follows; "Viruses are gourmans, not gourmets. They will eat almost anything that resembles their natural nutrients and don't have as high a requirement for special substrates as higher organisms do."

Since Ogilvie knew what type of structural compound is not deaminated by the mammalian enzyme, he was able to synthesize a compound which was not affected by the mammalian enzyme but was used by the viral enzyme. Ogilvie, thus, had a compound which could inactivate a viral system but would not be toxic to mammals since

the mammalian enzyme ignored it.

Says Ogilvie, "I now had my hypothesis, I had my projected solution and I had a way of testing it."

When tested, Ogilvie's hypothesis turned out to be correct.

Of why he didn't mention this intuition in his original paper Ogilvie says, "I thought it might lead to something important but it went against the established thinking of the time and publishing it wouldn't get me one penny more of grant money. I had the intuitive feeling that it would work and I was going to wait until I'd proven it."

Six of the compounds Ogilvie has synthesized have shown tremendous activity against herpes and Ogilvie says the results are, "extremely encouraging."

The lucky accident of finding that

chemical structure determines deamination activity, led to Ogilvie's designing a compound which may eventually serve as a herpes treatment. Ogilvie says, "The luck part is in having the situation pass right before your eyes. The next part is in making the intuitive observation; to have the ability to see something and know what it means."

"There could be a rainbow outside my window," says Ogilvie, "but if I don't look outside I'll never see the rainbow and if I don't see the rainbow I can't find the pot of gold."

When Ogilvie eventually perfects and markets that herpes treatment, I hope the man in the street sees more than a herpes treatment and a clear sky. I hope he sees the rainbow too.

Great discoveries, lucky accidents and the prepared mind ...

CLASSIFIEDS

Ads may be placed through the Daily, Room 803, Student Union Building, 8am to 2pm. Deadline is 2pm two days prior to publication.

McGill students: \$2.00 per day; for 3 days, \$1.75 per day; more than 3 days, \$1.50 per day. McGill faculty and staff: \$3.00 per day.

The McGill University WIND ENSEMBLES*

have openings for
BASSOONS
FRENCH HORNS
and certain other instruments.
Experienced wind players are
invited to contact:

Prof. R. Gibson
Faculty of Music
Telephone
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* This course may be taken for credit

All others: \$3.50 per day. (Exact change only, please).
The Daily assumes no financial responsibility for errors, or damage due to errors. Ad will re-appear free of charge upon request if information is incorrect due to our error.
The Daily reserves the right not to print a classified ad.

341 — APTS., ROOMS, HOUSING

5 minutes walking distance to class. 1 & 2 bedroom apartments. Large room, modern conveniences, short term lease available. 1555-1575 Summerhill (near Cde des Neiges). 935-7274. 933-2222.

Share available 4 1/2 on Bishop St.; furnished except empty bedroom; \$400/month. Wanting studios, neat/clean girl. 8 or 12 month lease. Phone Jennifer 845-4548.

SUBLET: 3 1/2, spacious, Balcony, hardwood floors. Close to Parc Lafontaine on Sherbrooke St. easy access to McGill. \$335/month includes heat and utilities. Call: 523-6748.

Sublet: November to July 31. Lovely 3 1/2 in modern building, pool and sauna. 1550 Dr. Penfield \$550 per month including garage (to be discussed). Daytime, tel. nos: 397-4117; 397-4176. Evening, tel. nos: 935-8793, 733-5765. Refer to apartment when calling.

DRUMMOND STREET, 5 minutes walk to class Rooms now available for students from \$110-150 CALL PETER 842-1365.

343 — MOVERS

ALL LOCAL MOVES done quickly and carefully by student with large closed truck. Fully equipped, reasonable rates. Available weekends. Call Stéphane, 737-7540.

350 — JOBS

IMVC Marketing Consultants is seeking SALESPERSONS lucrative sales opportunity awaits aggressive individuals. No sales background required. Ideal opportunity to gain firsthand experience. Part time or full-time flexible hours. High commissions. Phone 683-3810.

352 — HELP WANTED

PART-TIME TYPESETTER for weekday mornings and early afternoons. Applicants MUST be fully experienced on Compugraphic MDT 350 and trendsetter 812. If interested call Paula at 392-8959, weekdays 8am to 2pm.

Tutorial Service is now hiring senior or grad students to tutor a variety of subjects. Applicants must have S.I.N. number and bring transcript and reference to Powell Bldg. 3637 Peel, room 206.

354 — TYPING SERVICES

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356 — SERVICES OFFERED

ANDREXIA and BULIMIA are being treated at The Montreal Centre for Personal Growth. For more information phone 284-0062.

SURVIVORS of INCEST, both overt and covert, are invited to come to a workshop at the Montreal Centre for Personal Growth. For more information phone 284-0062.

358 — WORK WANTED

HOUSECLEANING: McGill student will clean your house or Apt. one afternoon per week for \$20 per week. Call Lori 285-0035, Room 613.

361 — ARTICLES FOR SALE

Attractive grass green broadloom carpet 911X1211. Almost new \$80 — 2 Simmons comfortable armchairs green velvet good condition \$50 or singly \$25 — Chest of drawers (six)/attractive almost new \$35. Please inspect no obligation 845-8091 evenings.

Sacrifice. Large Advent Loudspeakers (Walnut) in near mint condition - \$350 I.r.m. I must pay the bills. Call Mike 486-2979.

Furniture for sale: dresser, double bed, single bed and blinds. Very reasonable. Call 844-0797.

Give your ankles a break! Man's CCM Targa (ten-speed) 21 inch frame/27 inch wheels/blue. \$50.00. Call evenings: 748-5265.

MUST SELL: Sanyo M4440 Walkman, purchased brand new 8 months ago; paid \$145.00, asking \$95.00. Call 334-0895 after 8 pm.

FOR SALE 2 large wooden desks, 1 sofa, 1 large kitchen table. Price negotiable. Call Chris after 6 pm 481-0518

10,000 DIFFERENT original movie posters. Catalogue \$2.00. Mnemonics Ltd. Dept. "H", No. 9, 3600 21 St. N.E., Calgary, ALTA. T2E 6V6.

367 — CARS FOR SALE

PEUGEOT 504 1975, sun roof, 88,000 miles. \$400. Days 392-8229. Evenings 388-5238.

372 — LOST & FOUND

LOST: GOLD I.D. BRACELET "Ruby" engraved of great sentimental value. Please call Ruby 735-0072 or return to Davis House, Carmen on 2nd floor. Thanks.

LOST: In center for French as Second Language, Thursday afternoon Sept 15 - Gold Bracelet with circular design. Great Sentimental value - Irreplaceable. Reward gladly offered. Call 286-0218 anytime of day or night

LOST: at Shaughnessy Cup - blue "Lugger" backpack with Middlebury Ski Team jacket inside. Call John at 286-1441.

LOST: brown leather pencilcase of great sentimental value in Union Building Cafeteria, Wednesday Sept. 14: Has Ink Stains - call Liz 739-8556.

LOST in Molson Stadium Friday Sept. 16 - a Burgundy school bag containing I.D.'s & Important class notes. Reward. Call 689-5966.

LOST: one pink suede jacket in Arts W120, or Union Cafeteria on Friday Sept. 16. If found please call 483-2087.

383 — LESSONS OFFERED

Modern Dance Classes, Tuesday and Thursday evenings. Other times negotiable. Call Franine: 866-3281.

IMPROVE YOUR ENGLISH conversational or written with qualified teacher reasonable rates 489-8585/488-6502.

Studio Z presents a WHOLISTIC WORKSHOP IN MASSAGE THERAPY beginning October 8th. A detailed study of therapeutic application using Swedish Massage Technique will be highlighted/Preventive medicine for better health! Call Anne Speiser, MT, 937-9677.

385 — NOTICES

AUDITIONS for MCGILL PLAYERS' opening production: two one acts ROBIN HOOD and THE LEGEND OF SLEEPY HOLLOW. Everyone from every faculty welcome! No experience necessary. Monday Sept. 19 4-6 pm Wednesday Sept. 21 6-8 pm Friday Sept. 23 12-2:30 pm. Players' Theatre 3rd floor Union Bldg. 392-8989.

GRADUATE STUDENTS: Have you elected your representative to PGSS council? ELECT THEM NOW! Next meeting of PGSS COUN-

CIL: Wednesday September 21, 7:30 pm Thomson House.

Auditions for McGill Savoy Society's Pirates of Penzance will be held Sept. 26, 27; 5 to 8 pm, rm. C617, Music Bldg. re: auditions for lead parts first call 392-8819, 9 am to 5 pm.

Concept Sur Le VII presents The Whole Actor an advanced actors' workshop on Sundays September 25 and October 2. Stage presence and preparation, organic sound/and movement, relaxation techniques, "connecting", and creative energy balancing will be explored. Call for interview or info. 525-0760.

FREE LECTURE How to improve your memory. Sunday evening at 7:00 pm. 1538 Sherbrooke Street West, suite 710. Please reserve by calling Dr. Nathan Schiff at 935-7755.

GRADUATE STUDENTS: get involved! Elections for: Speaker of Council, Chief Returning Officer, Committee Positions will be held on October 12, 7:30 pm at Thomson House.

GRADUATE STUDENTS: ALL PGSS Council Representatives must communicate their name, telephone numbers and department to Steven Fraser, Secretary PGSS, Thomson House as soon as possible.

Mr. NAKAO Osami, ex-resident of Pavillon McConnell, a former Political Science student at McGill University, was killed in the accident of Boeing 747 (KAL 007). His parents in Japan are looking for a souvenir of their son, especially any photo or Mr. NAKAO. Those who have it, are requested to contact Mr. Noda. TEL. 866-3429(day)/737-4955(evening)

Which way to the beach? Friday nite, 3483 Peel Surfs Up at Zeta Psi's Beach Party.

WORKSHOP: Leaving home! Discussion about how to find an apartment; budget; live away from home. Place: Powell Student Services Building, room 205, Thursday, 12:00-1:30.

387 — VOLUNTEERS

VOLUNTEERS WANTED to visit isolated elderly people in the ghetto during term (Eng. and French speaking) call Yellow Door 392-6742 Mon - Fri 9:30-4:30.

Want to improve your reading speed and comprehension?

READING EFFICIENCY CLASSES

Sponsored by the Dean of Students and offered by the Reading Centre

Mon. and Wed. class
Sept. 26 - Nov. 7
11 am - 12:30 pm

Tues. and Thurs. class
Sept. 27 - Nov. 3
12:30 - 2 pm

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A study discussion group for those who want to engage the bible as a resource for life in the world.

Every Thursday 4 pm at
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ADDITIONAL COURSES IN THE DEPARTMENT OF ENGLISH

110-229B	Canadian Literature II ARTS W25	MWF 11-12
110-295A	Special Topics of Literary Study: The Image of Women in Victorian Literature ARTS 150	MWF 9-10
110-306A	Medieval and Tudor Drama LEA 214	MWF 9-10
110-337D	The Art of Poetry (note: correction) BRONF 59	TTH 9-10:30
110-346D	Art and Literature: Pre- Raphaelites and Aesthetes ARTS 265	MWF 11-12
110-409A	Study of a Canadian Author: Margaret Laurence LEA 116	TTH 9-10:30
110-473A	Advanced Practical Work in the Theatre I MOYSE HALL	TTH 9-10:30
ALSO:		
110-565D	Medieval Drama Workshop ARTS B53	TTH 3-4:30

Descriptions of these courses are available in the English Department, Room 155, Arts Building.

110-308A	Elizabethan Drama (Time change from Timetable) ARTS 265	MWF 2-3
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TODAYS

Women's Union — Myth/Reality: Lesbianism in the Eighties. 17h00 in Union 423. Everyone is welcome.
Film Society — The Seventh Seal at 20h00 in Leacock 132. Tickets at the door (\$1.75)
Armenian Students' Association — at Activities Night. All new students as well as old ones are welcome.
Caribbean Students' Association — invites you to their bake sale, being held from 11h00 to 14h00 Union lobby.
Political Science Students' Association — general meeting at 16h00 in Leacock 411. All are invited to find out more about the PSSA, especially U1 students interested in running for U1 representative.
Blood Drive — meeting for volunteers signed up and those interested in doing so. 19h00 in Program Board office, Union 807.
Daily Sports Writers — meeting at 17h00 in Union B03. Anyone interested is urged to attend.
L'Edition Française — Grand Rassemblement Monstre, 16h00, Union (B03). Blabla, blabla...

Music — piano recital by Dany Nachman. 20h00, Recital Hall (555 Sherbrooke W.)
Players' Theatre — auditions for opening production of Robin Hood and The Legend of Sleepy Hollow. Everyone from every faculty welcome! 3rd floor Union, 18h00 - 20h00.
Library Workshop — on use of microfiche catalogue, author/title card catalogue and McGill Union Catalogue in McLennan Library. Workshops start at Undergraduate Library Information Desk; 13h00 - 14h00, 15h00 - 16h00. Sign up: 392-4288.
Instructional Athletics — registration 18h00, Currie Gym, 475 Pine Avenue W. For further information see the ad in today's Daily or call 392-4737.
Nordic Ski Team — general meeting at 18h00 in room G20 (Currie Gym). Please bring your academic schedule.
Chabad House — tonight is the first night of the Succoth Festival. Candle-lighting time is at 18h39. Services at Chabad House (3429 Peel Street) begin at 18h46. Come and join us! Chag Sameach!

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NEWS

Secretaries on alert

by Angela Dunn

McGill secretaries obviously concerned with the increase in reports of sexual attacks in campus buildings confronted university administrators Monday.

Sam Kingdon, Director of the Physical Plant, was one of three males present at the meeting. He admitted to the secretaries that previously released "information was incorrect."

Kingdon spoke of a "differentiation" Security makes between overt sexual harassment and what the secretaries referred to as "an invasion of privacy" or the presence of men in a women's toilet. He implied the washroom intrusions were no cause for alarm.

Several of the approximately 30 secretaries at the meeting objected to Kingdon's light treatment of the subject. One said suspicious instances needed "some category that's closely

related" to sexual harassment. She suggested that some men discovered in toilets may have been contemplating acts of aggression.

"The relationship cannot be ignored." It is a "potential sexual assault," she said.

Professor Sam Noumoff of the Senate Sub-Committee on Safety for Women said men caught in washrooms sometimes made explanations so "off-the-wall" and "ludicrous" that there was every reason to believe they were potentially dangerous.

Noumoff wrote a letter to the McGill Reporter last week, challenging the newspaper's statistics on the numbers of indecent exposures, washroom intrusions, sexual assaults and rapes. He charged the Reporter and the university administration with trivialising the occurrences.

"This less than accurate por-

trayal of the situation does not contribute to an overwhelming sense of well-being," he wrote. "The university is culpable as a consequence of inadequate action."

At the meeting, Kingdon attempted to placate secretaries by outlining measures which have been taken to avoid further incidents. They include signs in all women's washrooms which contain the university emergency number (3000), approval of funds for "direct publicity" to all female students and staff "on the general subject of being alert," and promises for improved lighting in stairwells, foyers and campus routes.

Kingdon's team is also looking into the cost of relocation of washroom entrances so they are accessible from corridors rather than from stairwells, which are ultimately sound-proof.

The secretaries present seemed satisfied with his response.

Popular film "racist"

by Douglas Hagerman

The extremely popular, award-winning film "The Gods Must Be Crazy" is "viciously racist and actually South African" according to Julian Samuel, a freelance Montréal filmmaker.

The film was brought to Montréal as a Botswana comedy. Samuel, however, sees it as a "deplorable indication of the South African apartheid sentiments that have become engendered in our society."

Samuel is organising a protest against the screening of the film at the Paris Theatre on St. Catherine's.

The film was originally screened at the Montréal Film Festival and was honoured with one of its most important prizes.

The film has been regarded as a harmless comedy by the majority of audiences and critics alike. Bruce Bailey of the Gazette said that the film was

certainly not racist since both whites and blacks are seen equally as the butts of the joke.

Samuel's responded to Bailey's article as "typical of a complacent cultural institution which was amused by the satire and baffled by its own witless intellectual network."

Samuel has organised a demonstration for this Friday at 7:00 pm in front of the Paris Theatre where the film is being shown.



Daily Photo/Mark Lachovsky

Rumours that Students' Society President, Bruce Hicks, is a machine were confirmed on lower campus last week when, in a spasm, he jumped into a pool of deep jello, then leaped out, took a few halting steps, short circuited, and while sparks flew from his buttocks and head, was heard over and over again in a crackling voice: "McGill, McGill, up on the hill, McGill, McGill, what a load of swill." Students applauded feverishly, believing they were witnessing another Welcome Week celebration.

McGill wins Shaughnessy Cup
see story page 11

Ploughshares paralysed

by Joanne Tilden

McGill Ploughshares has the symptoms of a teenage crisis. It suffers alienation, it's having an identity crisis and it's broke.

Ploughshares intends to educate students on the disarmament issue. The group has chosen to remain unaffiliated with the Montreal Ploughshares group according to leader Kim Anderson "so that it can orient itself towards the university".

However, more is needed to spark widespread support for it among McGill students, judging from past small memberships.

What Ploughshares opposes is clear. The question posed at the opening meeting last week was "What does Ploughshares promote?"

"I don't have something concrete to tell you," said Anderson. "Ploughshares has no set constitution of ideas. We are a student organisation and the group changes all the time."

Securing an ideology is not the most urgent problem, though. The group has no budget on which to operate.

Ploughshares submitted its budget to the Students' Society

after the April 29th deadline and missed out on the \$400 that up until this year was allocated to the first 20 clubs to apply.

Then, Ploughshares expressed interest in becoming a Committee of Council. That is a committee that makes proposals to the Students' Council based on its expertise. The Council has the power of veto and elects the committee's chairperson. If it becomes a Committee of Council, Ploughshares will come under the control of the Students' Council, to which it will submit a budget proposal.

"There's a good chance our application would be accepted by the Council", Anderson said, because of the pro-disarmament stand taken by 70% of voters in last year's campuswide referendum.

A decision has not yet been reached.

Daron Westman, a member, opposed the move towards committee status: "I'm afraid that the Council could hinder our policies of demonstration and civil disobedience and criticism of university policy on military research."

Lighting situation satisfactory?

by Denise Araiche

The university is satisfied with what it has done to ensure the safety of women on campus at night but some students are not.

Andrew Rostaing, Superintendent of Campus Services (security) at McGill insists security and lighting at McGill are sufficient.

"The incidents which happened at McGill, happened during the summer when there was a lack of people on campus. We rarely have incidents when the student population is here," he said.

Further, "there were more lamps at one time, but because of persistent vandalism, they were removed," said Rostaing.

Laura Crawford, a member of the Co-ordinating Commit-

tee of the Women's Union feels outdoor lighting is inadequate.

"A lot of places on campus are potentially hazardous areas. Just because the lights have been vandalized doesn't justify actions for removing them," she said.

Crawford doubts Rostaing's assertion that sexual attacks and harassment will decline once school is in swing and more people are on campus.

"When the school year starts, there could be more incidents (washroom, intrusions, voyeurism, etc.) because now there are more likely victims."

Although increased security and lighting are not forthcoming, Rostaing pointed out safety measures for women walking alone at night.

"Students should look out

for 'number one.' They should stay away from dimly-lit areas. Women should hang on to their purses. In this way, there will be less chances for women to fall victim to these crimes," he said.

Crawford objected to Rostaing's recommendations:

"From the response of Mr. Rostaing and others at McGill, it seems that people feel that the problem stems from women, not men, which isn't true. Men are the aggressors, they are at the root of rape and other related incidents. What has to be done by McGill is to educate men and women on the problems which exist, and to also improve lighting and security. Women should not be restricted to certain areas on our campus when it is our right to walk anywhere we please."

Letting the science well run dry

by Robert Atkinson

A pragmatic drive to boost strategic research is threatening the future of free discovery.

"If you could invent a one-piece can, you would be a millionaire," chuckles Tom Waram, a research investigator for Stelco, Inc., as he collects metal samples in a Pyrex beaker. His unhurried manner and open-necked shirt (no white lab coats here) demolish the stereotyped image of scientists as so many Dr. Franksteins surrounded by guinea pigs bristling with electrodes.

Although the idea that he might be the inventor of the seamless container has probably crossed Waram's mind, for the moment he's happy working on an improved plastic coating for the industry's two-piece steel cans. Waram, 30, is in applied research — he focuses his scientific expertise on a specific goal that determines his methods.

"I feel lucky," says Waram. "I'm working on new products where I can put in my own ideas. Most people think a can's a can, but a lot of thought goes into the simplest items."

Stelco's airy, comfortable research facilities are on a landscaped hilltop overlooking Hamilton harbour. Meanwhile, at the federal government's research laboratories in Ottawa, another kind of scientist works in a more austere building whose pebbled-glass partitions telegraph its institutional status.

Here at the National Research Council, Canada's Nobel laureate chemist, Gerhard Herzberg, 70 years old and still going strong, is investigating the lifespan of triatomic hydrogen. This is an inquiry no private industry could afford to underwrite: its economic potential is zero at present and the five-man chemistry lab costs \$150,000 annually. Herzberg says, "my work is very abstract, but it might eventually prove useful for some application I can't think of at the moment."

Science and technology today are a great monolith, arguably the most significant endeavor of modern man. The essence of scientific investigation is an inquiring mind like Herzberg's probing new frontiers. Equally important are scientists like Waram, who transform basic discoveries into useful products.

Although the distinction between them is not always clear cut, governments have been forced by the demands of short term economics to carefully weigh the benefits of basic and applied research.

Convinced that superior technology is the key to bolstering our faltering economy, Canada is targeting potentially profitable areas such as natural resource products, biotechnology and telecommunications for massive infusions of federal money. To many public sector scientists, this stress on strategic targets has grave implications: basic research in non-targeted areas may become seriously underfunded.

Private industry has always realised the necessity of basic research and has a long tradition of funding universities for this purpose. But now obsolete equipment and reduced manpower are rendering university labs increasingly ineffectual. Governments are slamming the treasury gates on basic science funding. For its own good, therefore, industry must invest more in public sector research activities.

The most sensational grant has been

rather than leaving the paying public mystified. The scientist is traditionally seen not as a theoriser but as an observer who stands aloof, allowing the universe to reveal its naked truths before his objective gaze.

The history of basic research and scientific discovery is littered with inspired random connections and insights: the 19th century German chemist Friedrich Kekulé claimed that the hexagonal structure of the carbon atoms in Benzene appeared to him in a vision as six snakes linked by their heads and tails. Today most scientists would agree with biologist Sir Peter Medawar's statement: "Scientists are building explanatory structures, telling stories that are tested to see if they are stories about real life."

Such a view suggests that the practice of science is an integral aspect of culture, an act as intense and demanding as the creation of art. Scientists therefore feel that basic research, unlike applied, should never be expected to

the \$50 million the West German chemical giant Hoechst has given to Massachusetts General Hospital for biomedical research. In return, Hoechst has right of approval over all patentable projects and inventions. No Canadian company has matched this grant, although Imperial Oil, one of the country's largest private funders of research, will distribute \$600,000 to 91 projects next year.

When scientists speak out on these issues, they are often met with hostility. Why, people wonder, should scientists play around in their labs at the public's expense, when the results are unpredictable?

Decreasing faith in science's ability to solve pressing social problems hasn't helped either. Ignorance of what science is all about seems to be its worst enemy, and scientists themselves tend to be closed-mouthed about their works.

Scientists would probably be better off trying to explain how science works

demonstrate "pay-off" potential.

But when the breakthrough discoveries come thick and fast, the ivory tower isolation of pure research is quickly overwhelmed in the rush to the patent office.

This has been extremely evident in the field of gene splicing. No sooner has another gene been mapped or a new splicing enzyme discovered than a commercial application pops out of the test tube. In the US, every top level gene splicer either works as a technical consultant or owns shares in biotechnological companies such as Genentech, Biogen and Cetus for fear that others will reach the Swiss bank first with genetically engineered millions.

The difficulty in deciding who should control the application of basic research is intensified by an educational system that produces overspecialised "experts" reluctant to apply their expertise in the context of larger social issues.

Ursula Franklin, University of Toronto metallurgy professor, criticises this pursuit of knowledge, power and status at society's expense. "A scientist is a citizen with a tool box," she says. "Because of their eagerness to get tools into their box they ignore the citizen."

Whatever their views on the commercialisation of free research, scientists agree on one point: pre-university science education is in a deplorable state and must be revised, whether it is providing for the future scientist or the generally informed layman.

New curriculum guidelines at the senior high school level tend to emphasise technical skills that will make students marketable in specific areas such as food, energy and shelter. "Kids have absolutely no contact with basic research," says U of T's Franklin. "They don't even know there is such a thing. Mainly they're concentrated on careers."

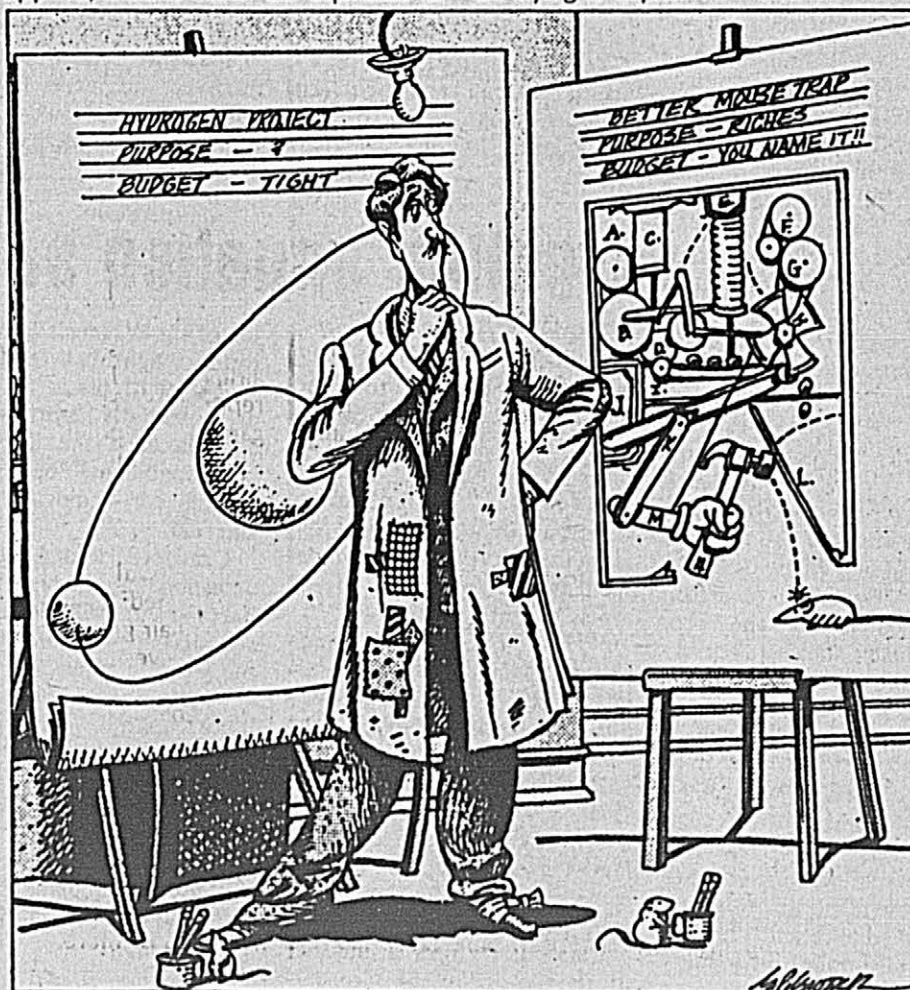
One of the reasons simply put is that industry pays more. A graduate with a B. Sc. will start off in industry at more than \$20,000, about what a PhD graduate will initially receive at the NRC or at a university.

Says Franklin: "When a prospective research student sees a respected professor running around with a begging bowl to keep himself and his students alive, naturally the student thinks 'Why should I take a PhD?'"

With job slots in industry a top government priority, pre-university science education administrators are clearly having trouble turning out well-informed, dedicated scientists who might find basic research a satisfying career. And while public sector scientists everywhere struggle with the resurgent god Mammon, it is ironic that the Roman Catholic Church is retrying Galileo in an effort to redeem its public image as science's greatest enemy.

But acquitting Galileo will not help the spirit of free discovery now, threatened as it is by forces far more powerful than the Church. In the words of science writer Horace Freeland Judson, "The clarity of the moment of discovery, the beauty of what in that moment is seen to be true about the world, is the most fundamental attraction that draws scientists on."

At stake today is nothing less than the opportunity to experience that moment.



Science fraud grows

by Keith Janzen

The integrity of the scientific community is being questioned among the scientific community.

It is widely accepted that most kinds of professional people cheat. Politicians know that if they fail to pretend that their latest package of schemes will cure all the world's problems, they will not get reelected. Businessmen embellish the worth of their new products for fear that otherwise they may not sell.

The scientific community argues that, although other kinds of professional people are motivated to cheat through self-interest, by definition the practice of science must be different. Science cannot make progress, but will only go backwards if non-objectively acquired data is published.

So what is to be made of the great number of accusations in the past few years and weeks that some elements of the scientific records are not only false, but also fraudulent?

This question becomes highly eminent in light of the now infamous case at the University of Geneva, where it was necessary to set up an external committee to inquire into the validity of data on mammalian cloning reported in the past several years by Dr. Karl Illmensee. Recently, the University of Berlin also had to set up a similar system because of the questionable publications by one of its scientists.

One of the greatest nuisances to people working in a field in which published data have been alleged to be false is that they must repeat experiments already carried out, rather than being able to go on to new creative work and how should journals with suspect data go

about informing future readers that something published many years ago has questionable validity?

The circumstances prompting cheating in science are real but do not constitute an excuse. For young people, the pressure to publish stems from the need to secure a position in research and to make their reputations quickly. The need to compete for grants in a highly competitive and fast moving field is another reason for cheating.

The most serious pressure to publish comes from the less distinguished institutions determined to move up on their betters. Ironically however, the dozen or so proven cases of falsification that have cropped up recently have occurred in some of the world's leading research institutions — Cornell, Harvard, Yale, etc. — and have been blamed on people who are acknowledged by their peers to be intellectually outstanding. Although the pressure to publish may account for much dull literature, it cannot account of itself for fraud.

Part of the problem in many proven falsification cases has been the indifference of a senior person to what their junior partners do in the

anonymous peers approve.

No one can deny the value of the peer review system as a means of deciding what to do in some practical situation. For example, to publish or not.

The best laboratories and university departments are well known for their searching mutual questions. It may be in the best interests of the scientific community that research people should be more dependent on the judgement of their close colleagues for the funds they dispose of.

These suggestions would not make accusations of falsifications disappear completely. The possibility must remain that professional scientists may have more in common with other professional people — businessmen and politicians for example — than they would like to think. Deliberate fraud in an academic setting is undoubtedly rare (and could be made even more so if universities cultivated openness), but who could say the same of, say, unthinking or unconscious self-deception?

What happens if a person finds some unexpected result in the laboratory, publishes it, wins all kinds of acclaim and then finds that his results can't be repeated? to say that he

"It was more of a 'triple-blind' test. The patients didn't know which ones were getting the real drug, the doctors didn't know, and, I'm afraid nobody knew."



laboratory. In at least three of the proven falsifications in the US, a relatively senior scientist has been a front-man for a junior colleague, acting as a provider of services and funds and putting his name on an occasional published paper.

In both these roles, such people have made fraud possible and persuasive — yet it is the junior colleague whose career has been ruined. While it is over-zealous to ask that every author of every scientific paper be able to vouch for every detail of it, there is a point nearer to close knowledge than to near ignorance at which research supervisors should shoulder those who are really responsible for a paper with the great responsibility that full credit carries with it.

The principle of peer reviews needs to be more widely extended. Research institutions, especially universities, have slipped into the sloppy habit of using external assessors for the judgment of their own achievements. By doing so, they have agreed that their own corporate judgment of a colleague's work may be suspended if there is evidence that

should instantly recant is asking a lot.

But doesn't such tolerance imply that dishonesty can be accepted? Of course not. There is, however, a problem of definition. To be in error is not to be disgraced.

Aristotle isn't scorned for having fostered a mistaken notion of mechanics on the succeeding millenium. Lord Kelvin's statue in Glasgow has not been smashed because he made the theory of aether fashionable in the nineteenth century. But who can be sure these errors were honest and in no way the product of arrogance?

It is foolish to suppose that failings such as these, regrettably common in most fields, should never occur in science. A better hypothesis would be that they should be about as commonplace as elsewhere, from which it follows that there is no getting rid of falsification. The best hope is that its consequences can be kept in check. In spite of the seamy record of the past few years, that seems to have been done reasonably.

Calorimeter

Look Ma, No Cavities!

A new vaccine to prevent tooth decay will be tried out on several hundred British school children this Fall.

The vaccine is based on a natural bacterium in the mouth which acts on sugar to produce a tooth enamel-eating acid. It has been formulated into a vaccine which will develop antibodies excreted by saliva to neutralise enamel-eating acid.

The vaccine was developed in a collaborative venture by the Department of Dental Science at the Royal College of Surgeons and the Wellcome Foundation.

Contraceptive Sponge

The US Food and Drug Administration has approved marketing of the new contraceptive sponge. The sponge, a disposable polyurethane device containing one gram of common spermicide, does not require fitting by a physician and has shown an 85% effectiveness in clinical trials.

The device is inserted into the cervix and works by deactivating sperm through the release of non-oxynol 9, by blocking the penetration of sperm to the cervix and by trapping and absorbing sperm.

FDA officials have ordered the manufacturer to delete the words "highly effective" from the product's label. Although some clinical evidence indicated that the contraceptive sponge is effective up to 48 hours, there are insufficient data to support the advertising claim.

Tanning Booth Dangers

People attempting to prolong their summer tans over the winter by using ultraviolet A radiation used in cosmetic "tanning booths" risk development of cataracts, skin cancer and premature aging of the skin, according to a panel of experts from the American Academy of Dermatology (AAD).

Members of the AAD's task force on photobiology have expressed concern about a trend to replace old style tanning booths using ultraviolet B with newer UVA models. The UVA booths are mistakenly considered safer because they do not produce sunburn.

However, data suggest that UVA radiation damages unprotected eyes, contributes to the development of skin cancer, causes cell injury and can produce cutaneous hypersensitivity reactions in persons using medications such as oral contraceptives, antibiotics and some high-blood pressure medications.

Beer Next?

A New York firm is marketing a new non-alcoholic wine for people who must abstain from alcohol for any number of reasons (low tolerance for alcohol, urinary tract infections, etc.). Attractively packaged and served in wine glasses, the non-alcoholic beverage gives abstainers the opportunity to mingle in a drinking situation without having to explain why they're not drinking something stronger.

Have Computer, Will Travel

For businessmen and computer buffs who hate leaving their computers at home or at work when they're on the road, Travelhost is solving the problem.

The Dallas-based travel service company is currently installing computer terminals in about 120 hotels throughout the US so that guests can perform such simple functions as checking airline schedules and making reservations; scanning UPI reports; catching up on sports scores; or playing electronic games. Computer time isn't cheap. Guests pay \$3.00 for the first 20 minutes and 17 cents per minute after that.

Hair Drug

An unusual side effect occurred during clinical trials of a drug being tested for treatment of resistant hypertension — it promoted hair growth.

Now investigators are looking into its use as a treatment for baldness, even though hair growth wasn't always permanent. Drug company officials emphasise that the drug has not yet "been proven either safe or effective for this problem" and are concerned about men trying to get the potent drug on their own.

Volunteers, says Medical World News, have flooded investigators with phone calls and office visits, often despite attempts to discourage the hopefuls. Even if the potion proves to be successful in preventing baldness, FDA approval might take five years or more.



"Eureka! A breakthrough! A boon to mankind! But first, an article in the New England Journal of Medicine!"

The fruit improvement project

by Tony Pocklington

Few are familiar with the details of Newton's 20 year search for a proof of his hypothesis: the frustrations and failures, and the integration of his scattered efforts by the fruit improvement project.

In 1665 young Newton became a professor of mathematics at the University of Cambridge. His services to the College went far beyond teaching. He was an active member of the college's curriculum committee, on the executive board of the Young Noblemen's Christian Association and numerous other committees essential to the proper administration of a college in the seventeenth century.

An exhaustive compilation of Newton's work along these lines reveals that during a five year period, he served on 379 committees, which investigated 7924 problems of campus life and solved 31 of them.

At about this time Newton, whose mind was far too active ever to let scientific problems recede from his attention, occasionally mulled over the great discoveries of Kepler on planetary motion. One evening in the year of 1680, a committee scheduled to meet at eleven o'clock, no earlier time being available, was unable to get a quorum because of the sudden death of one of the older committee members. Every moment of Newton's time was so carefully budgeted that he found himself with nothing to do until the next committee meeting at midnight. So he took a brief

stroll that altered the history of the world.

It was on this excursion that Newton Chanced to see a succulent apple fall to the ground. His immediate reaction was typical of the human side of the genius. He picked the apple up and ate it. Then came inspiration. Suddenly the idea formed in his brain that the falling of an apple and the motion of planets may be governed by the same universal law. Before he had completely finished eating the apple and discarded the core, Newton had formed his hypothesis of the universal law of gravitation.

In the following weeks, Newton's thoughts turned again and again to this hypothesis. Rare moments snatched between the adjournment of one committee and the call to order of another were filled with the formulation of plans for testing the hypothesis. Eventually, after several years during which he was able to spend 63 minutes and 28 seconds on his plans, Newton realized that the proof of his hypothesis would take more spare time than might become available during the rest of his life.

He concluded that he must find some relief from his collegiate administration burdens. To get permission to undertake his research he wrote a short letter of 22 words to King Charles, outlining his hypothesis. Eventually, Newton was asked to appear before His Majesty's Planning Board.

After Newton was sworn to tell the truth and had denied that he was a

member of His Majesty's Loyal Opposition, had ever written any lewd books or travelled in Russia, he was asked to outline his proposal. Newton proceeded to explain his hypothesis suggested by the chance sight of an apple's fall. At this point, one of the committee members, an imposing fellow, demanded to know if Newton had a means of improving the breed of apples in England. Newton began to explain that the apple was not an essential part of the hypothesis, but was interrupted by a number of committee members, all speaking at once in favour of a project to improve apples.

This discussion continued for several weeks, while Newton returned to his college and important committee work.

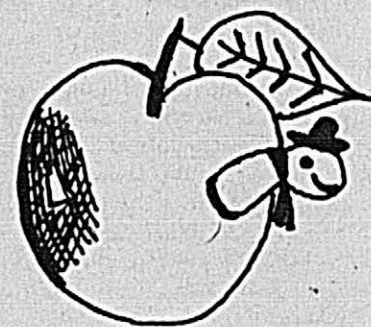
Several months later Newton received a bulky package from the King's Planning Board, containing a variety of government forms, each in quintuplicate. After careful study of the forms, Newton concluded that he had been given a grant to do a study on the relationship between breed, quality and rate of fall of apples. The ultimate purpose of the project was to develop an apple that fell so gently that it was not bruised upon striking the ground.

This was not what Newton had in mind when he wrote to the King, but being a practical man, he realized that in carrying out the proposed research project, he could test his hypothesis on the side. Thus, he could do his little bit for science in the bargain.

This period of life was a happy and

profitable one for Newton. Then one day in 1685, Newton took a walk through the vineyards of the Subproject on Grapes. While on this walk there came to him, a new and revolutionary mathematical approach which could help him prove his theory of gravity. Newton kneeled and offered thanks to the King for having made this discovery possible.

Thus it was that the king supported Newton during the trying years when he was testing his hypothesis. Let us not dally with the story of Newton's efforts to publish his proof, the misunderstandings with the editor of The Horticultural Journal, the rejections by the editors of The Backyard Astronomer and Physics for the Housewife. Eventually Newton was exonerated. After enjoying many years of the fame that was due him, reigning one day each year as king of the apple festival, Newton died happily.



McGill is first class: no question

by Sayed Jovkar

McGill University is thought to be a prominent research institute and university. Is research and discovery flourishing at McGill?

Funding is the fundamental reality that determines the ebb and flow of the research structure. The McGill University budget can be divided into the operating budget and research budget.

The operating budget refers to the part that is spent on items such as professorial salaries whereas research budget is intended for scholarly or scientific investigation or inquiry.

McGill research funds in 1982-1983 were about 62.7 million dollars, 40 million dollars of which was contributed by the Canadian government. The Québec government provided about 6 million dollars, the Canadian industry 2.7 million and the Canadian foundations and associations 6 million dollars. The other sources of research funds were American government, foundations and industry that contributed about 1.5 million dollars. The remaining amount came from McGill endowments and investments (3.6 million dollars) and other miscellaneous sources.

Research funds, therefore, came mainly from the Canadian government and private foundations. Natural Sciences and Engineering Research Council (NSERC) supports engineering and science research, whereas the Medical Research Council (MRC) provides medical research funds. The received research money is a very good index of research productivity at



McGill.

Considering the number of students and staff McGill should receive about 7% of the research funds in Canada but according to the dean of science, Sverre Orvig, McGill absorbs even more than 7%. "Latest statistics indicates that we are amongst the leaders in the received research funds."

McGill highly favors a link between researchers and industry; to this end, the Industrial Relation (IR) office brings the scientists and people in industry together. Says Orvig, "we are not altogether an ivory-tower community; we are close to industry - the other half which will benefit from much of our

work and knowledge that exist."

In principle, McGill encourages research and commercialization of potential 'products' arising from research. The current patent policy gives certain options to the inventor.

The first option is that the inventor can negotiate licenses and take the necessary steps to commercialize a potential 'product' at his own expense. Moreover, the inventor has to report the actions taken and names of the establishments using the invention every year. However, the inventor must pay the university 20% of the net income.

The second option is that the inventor

assigns the invention to the university which would then take over the responsibilities of patenting and thereafter commercialization of the 'product'. In this case, the royalties are then shared equally between the university and the inventor. Gerald Farnell, Dean of Engineering, describes the patent policy as very "liberal".

Recruiting researchers at the forefront of their fields is not an easy task. The operating budget provides the salaries of all professors and the shortage of operating funds renders it difficult to attract the 'active' outside researchers. In general, according to Orvig, McGill salaries are competitive to that of other Canadian and even other American Universities.

McGill, an English university, has not been discriminated against by the Québec government. The research grants and contracts are reflective of the individual's talent and research productivity but not their language, according to both Farnell and Orvig.

The research facilities in engineering are described as fairly satisfactory, by Farnell. However, engineering is desperately in need of space.

Compared to other 'good' Canadian universities, "quality of space (in engineering at McGill) is much worse," says Farnell. In contrast, Faculty of Science enjoys plenty of space.

Generalizing from the faculties of Science and Engineering, there is substantial optimism for future research progress at McGill. As Orvig says: "McGill is first class - no question."

McGill Biology: under the scope

by Louise Michaud

The McGill University Biology department has a forty member staff, one hundred graduate students and twenty six post-doctoral fellows. Its research efforts are concentrated in four major areas: 1) Human genetics, 2) Ecology, 3) Neurobiology, and 4) Cell and Molecular biology.

It is the youngest department in the McGill faculty of Science and its research programs are among the most highly funded of University biology departments in Canada. Virtually all members have their own research projects, and it is important to note that there is an enormous amount of work being done here.

HUMAN GENETICS

The Medical Research Council of Canada has granted four million dollars over five years to the MRC group in Medical Genetics at McGill University. The group provides genetic screening and counselling to the general public. Its project in Montreal high schools is screening for Tay-Sachs and B-Thalassemia and counseling to avoid birth defects.

Dr.Charles Scriver, co-director of the group, is interested in how genetic mutations produce disease. His research focuses on transport mechanisms: channels or carriers in cell membranes. In particular, mutations that affect transport of phosphate (essential to D.N.A. structure, energy metabolism and the hardness of bone); transport of amino acids and export of collagen are examined. Another concern of Dr.Scriver is the way genes appear in specific groups of people in Québec. He is studying Thalassemia and the distribution of a mutation among French Canadians that causes an inborn error of vitamin D hormone biosynthesis.

Dr.Leonard Pinsky, co-director of the group, is concerned with the responsiveness of human cells to the sex hormones secreted by the body.

Male sex hormones are produced by Leydig cells in the testes and by cells in the cortical region of the adrenal glands. These hormones act on various cells in the body to cause internal and external male sexual differentiation before birth, and male sexual maturation at puberty. The cells that are acted upon by male sex hormones are called target cells.

Practical significance of Dr.Pinsky's work would apply 1)in the management of patients themselves (for example, a patient with external genitalia ambiguity should be reared as a female or a male).

2)in the provision of genetic counselling to the parents and 3)in the exploitation of the defects discovered in the androgen-response system as models of the way in which the breast cancers of certain women that are initially responsive to sex hormone therapy eventually lose their responsiveness to the ultimate detriment of the patient.

ECOLOGY

The department has an international reputation for its work in aquatic ecology. The main focus of this group is the development of models to predict the functioning of aquatic systems. A series of studies have been made in order to render these systems predictable for management purposes.

For example, one major area of research has been the study of phosphorus dynamics in lakes. Phosphorus acts as a fertiliser, increasing the growth of plankton and therefore also creates an increase in the fish and animal population which feeds on these living organisms. The department's researchers have made major contribu-

tions to knowledge of the relationship between phosphorus dynamics and biological processes in lakes, and to the ability to predict the outcome of various management strategies applied to lakes.

Another area of study is the prediction of oxygen debts in lakes which can lead to the occurrence of "Winter Kill", known to happen, among other places, in the shallow lakes of the Prairies. During winter, the layer of ice which forms over the lakes reduces circulation and light penetration thereby making oxygen less available to plants and animals requiring it to support life. Models for predicting rates of oxygen consumption have now been established for lakes.

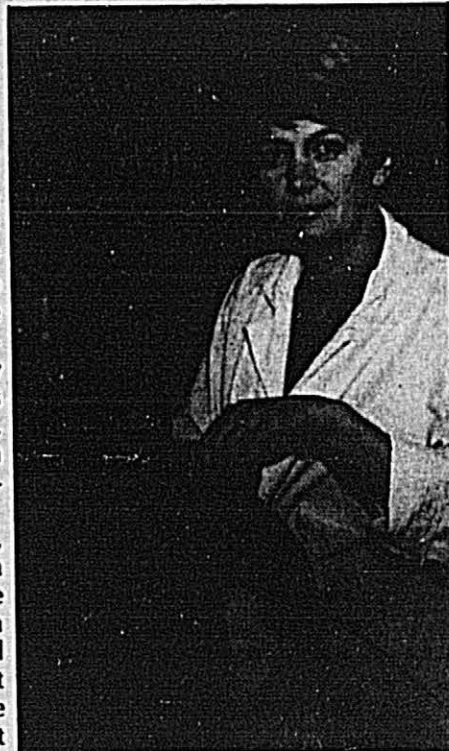
In evolutionary ecology last year, Graham Bell (no kidding) published a book titled "Masterpiece of Nature: the evolution and genetics of sexuality" in which he explores theories on sexual and asexual behavior. It was the first time someone had set out to review the major theories presented within the last fifteen years for the purpose of testing them.

NEUROBIOLOGY

Dr.Valerie Pasztor, who works with crustacea has demonstrated that the twenty or so motoneurons responsible for beating of the second maxilla, which ventilates the gills, display a rhythmic bursting pattern whose phase relationships are rigidly fixed.

Sense organs would seem to modulate the activity.

Dr.Gerald Pollack, who studies communication in crickets, has established the cricket's preferences for various rhythmic parameters of the song. He found that males and females respond differently to different rhythms. It was discovered that flying crickets steer away from ultra sound stimuli, suggesting that these and other nocturnal



flying insects may be able to hear the echolocation cries of hunting bats and so avoid predation. The female which doesn't sing, must be able to recognize her own species' song and localise it. I guess those male crickets were lonely when I visited Dr.Pollack's laboratory, because they were singing their little hearts away.

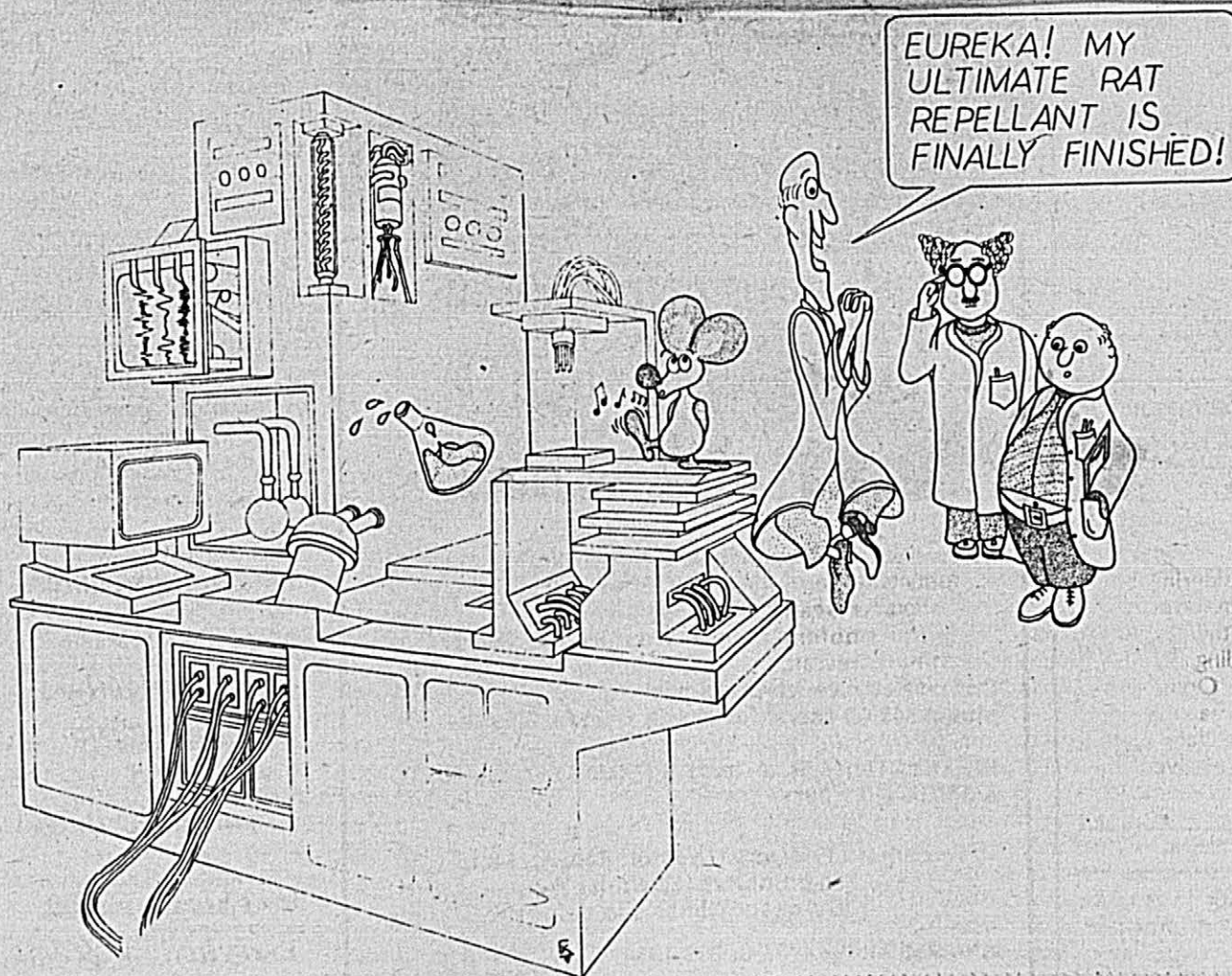
CELL AND MOLECULAR BIOLOGY

A very important contribution by this department has been the study of nitrogen fixation, which is of great potential importance to agriculture. Leguminous plants are known to have bacteria in nodules on their roots which take up nitrogen from the air and transform it to a form which can be utilised by the plant. Such legumes therefore produce their own fertiliser in this manner. Now that technology is available to manipulate genes of organisms, interest has been developed in the possibility of manipulating non legume plants so they will tolerate such bacteria and hence benefit from the nitrogen they produce.

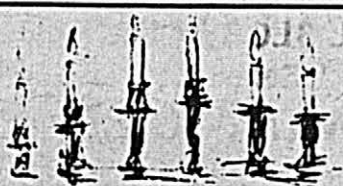
Dr.Howard Bussey, a bacteriologist, Dr.Greg Brown, specialist in genetic evolution and Dr.Desh'pal Verma were recently awarded a 2.5 million dollar grant by the "Allelix Corporation", a major Canadian biotechnology company, to continue research in the area of nitrogen fixation. It was the first large grant for biotechnology made to any Canadian University.

A second important contribution in the area of cell biology has been made by Sally Gibs. Her research suggests that the chloroplast in some algal species has evolved as a result of two separate symbiosis. First, between a eukaryotic cell and a blue green algae; second the entire eukaryotic cell is engulfed by, and forms a symbiosis with a larger protozoan. Subsequently, the eukaryotic cell was progressively reduced until only the chloroplast and other cell fragments remained.

It is quite obvious that the McGill Biology department has contributed a great deal to the advancement of Science. We'll definitely be hearing a lot more about McGill's biological discoveries in the very near future.



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Wed. Sept. 21 4 pm L425

Wine and Cheese Party

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McGill 10 km Road Race
Saturday, October 1, 1983

Purpose: All registration fees go to support research at the McGill Cancer Centre
Start: 11:30 a.m. - McGill College Avenue and Sherbrooke Street West
Distance: 10,000 m (6.22 miles)
Entry Deadline: Thursday, September 22, 12:00 noon
Fee: \$5.00 submitted with registration form

Forms are available at selected downtown sports stores and at the main entrance to the McGill campus.



PRIZES and AWARDS

Information: 392-4250 / 392-4848

Jenner and the milkmaids

by Victor Wei

During the 18th century, some unusual remedies were being used in parts of England and Ireland. One method believed to cure smallpox, a common disease at the time, was to eat a bun from the bakery of a woman who did not change her name when she was married. However, this method of treatment was not found to be totally reliable.

Smallpox is a disease which kills a high proportion of its victims, as well as leaving the skin

deeply pitted and eroded. Smallpox killed over forty million people in the 18th century. The reason this disease no longer is a threat is largely due to the work of one man, Edward Jenner.

Jenner, apprenticed to a surgeon at Berkley, was told by a milkmaid that she couldn't catch smallpox because she had already contracted cowpox. Cowpox is a relatively mild disease in which a cow develops lesions of the udder and milkmaids often developed

lesions on their hands which soon dried up.

Jenner used this information to develop a smallpox vaccine using fluid from cowpox lesions. It was common knowledge that people with cowpox did not get smallpox, but it took Jenner to put the facts together and try using a vaccine for one virus against another virus.

This vaccine was successfully used against smallpox and today, as a result of Jenner's work, smallpox has virtually been eradicated.

... The DNA story

There was much excitement about DNA because it seemed like a potentially fascinating molecule. Watson and Crick published their famous paper in the British medical journal Nature in 1953.

In 1962, Maurice Wilkins, Francis (Harry Compton) Crick and James Watson were awarded the Nobel Prize in Medicine for their discovery of the struc-

ture of genetic material. Rosalind Franklin met an untimely death in 1958 at the age of thirty-seven. However, before this she and Crick came to get along well and frequently sought each others' advice. The discovery of the structure of DNA is a fascinating example of the work and cooperation (and sometimes the lack of it) that goes into a great scientific achievement.

Paper chase

Adapted from *A Random Walk Through Science*

In the confusion of new discoveries and the thousands of papers reporting these new discoveries each year, the increased rigor of scientific investigation is resulting in a tougher look at the imprecise or dissembling phrases often found in research papers.

Someone who came across one too many of them compiled this list of research definitions:

It has long been known-I haven't bothered to look up the reference.

Of great theoretical and practical importance-Interesting to me.

Though it has not been possible to provide definite answers-The experiment didn't work out but I needed the publicity.

Typical results are shown-The best results are shown.

Presumably over longer times-I did not take the time to find out.

The most reliable results are Smith's-He was a student of mine.

It is believed that-I think that.

It is generally believed that-A couple of other folks think so too.

Thanks are due to Joe Glotz for his help and to Jane Jones for valuable discussions-Glotz did the work and Jones explained to me what it meant.

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and

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DNA's twisted discovery

by Ann Loewen

The discovery of the structure of DNA, the molecule containing the hereditary information in all cells, is interesting not only because of its tremendous impact on science, but also because it is a fascinating example of the personalities and conflicts that exist behind a great discovery.

The two main people behind the discovery were a British scientist, Francis Crick and an American post doctoral student, James Watson.

Watson received his Ph.D. in genetics in 1950 at the age of twenty-two. As an undergraduate at the University of Chicago his main interest had been birds. However, after listening to Maurice Wilkins, a British scientist, speak on DNA, Watson's interest was sparked. He began planning his move to a new field.

Max Perutz, in the X-ray diffraction unit (a method of showing a compound's crystal structure) of Cambridge University, agreed to let Watson join their team.

At the Cambridge Laboratory, Watson soon met Francis Crick. Crick, trained as a physicist, was recognized as having a quick mind and an ability to solve problems. He was also a bane to the existence of Sir Lawrence Bragg, head of diffraction at Cambridge. Crick's booming laugh and long winded arguments were not in keeping with Bragg's more reserved manner. Bragg was also not convinced of Crick's research abilities, because in his opinion, Crick should have by now done enough research to warrant a Ph.D..

Watson and Crick hit it off from the beginning. Lunches were spent discussing how to tackle DNA, and they came to the conclusion that using X-ray diffraction pictures and molecular model building were the best approach.

At this time another major lab already working on DNA was that of Maurice Wilkins, the man who first interested Watson in DNA. His approach was strictly through X-ray diffraction, assisted by a crystallographer, Rosalind Franklin. Assisted is perhaps not the right word, because there was considerable tension between her and Wilkins. Franklin believed that DNA was her project, and was aggressively protective towards her data.

A talk given by Franklin and attended by Watson revealed a good deal of information about DNA. Armed with this and their models, Watson and Crick began their work. They came up with a three chained helical molecule that appeared to fit all the data. Excitedly they called Wilkins to come and have a look. He came with Franklin and it was she who pointed out that their model was incompati-

ble with her data on the water content of DNA.

Realizing their mistake, Watson and Crick reluctantly abandoned their work. Sir Lawrence Bragg, wondering if he would be stuck with Francis Crick for the rest of his career, insisted that Crick begin on a definite Ph.D. course. Watson began studying the protein coat structure of a virus and the molecular models went untouched for several months.

The question of DNA structure was not laid to rest, though. Rosalind Franklin's data was becoming clearer, however, she was not convinced that the structure was helical. It was possible, too, that Linus Pauling, the American scientist who discovered the three dimensional structures of proteins might turn his attention and efforts to DNA at any time.

Watson and Crick were aware of this but they still had no new ideas a year after their

three-chained failure.

Finally the work on DNA began again. Watson returned to his models with Maurice Wilkins' new information showing that unequivocally DNA's structure was helical. Watson had the idea that perhaps two chains, not three, made up the molecule. After one wrong attempt, Watson hit upon an idea that fit all the known data well. Only the measurements of the model had to be made.

It was Rosalind Franklin who had measured molecular bond lengths and angles of the DNA molecule, but Watson and Crick did not get this information directly from her. Instead, they were obtained through the Medical Research Council of which Max Perutz was a member. Their model fit all the data.

Everyone who saw the model including Linus Pauling, agreed that it looked like the right one.

please turn to page 8



McGILL BLOOD DRIVE '83

September 26-30

**WANT TO BE
DISCOVERED!**

We are looking for entertainers - musicians, magicians, comedians etc - to perform during the blood drive.

If interested please call 392-8976 or visit us in B07, Union Ballroom.



Secrets Bar

2nd Anniversary Party

Tonight - Wed Sept 21st

All drinks \$2.50 Regular Beer \$1.50

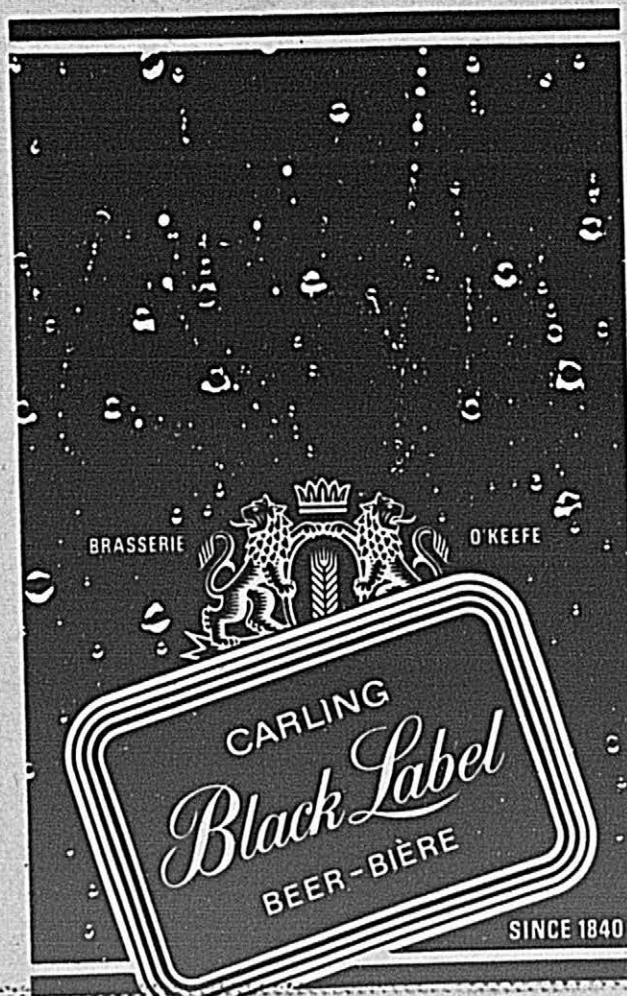
**OPEN
7pm-3am
NIGHTLY**

**40 Pine Ave West
(Corner Clark)
TEL 844-0004**

Prayer Group 1983-84

**Led by Sister Anne Walsh
Scriptural prayer and personal
sharing meets every Wednesday
7:30 pm**

**THE NEWMAN CENTRE
(Green Room, 3rd floor)
3484 PEEL STREET
392-6711**



**5 Days
Only
Mon to Fri
SEPT 26-30**

Room 107, Union Bldg



**1/2 Price Sale and
Bicycle Exhibition**

**Featuring XC Ski Equipment
+ Active Outdoor Wear**

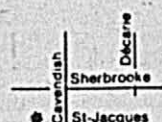
ALL PRICED TO CLEAR

See the latest in CYCLE TOURING TECHNOLOGY, MOUNTAIN BIKES, WINF LOAD SIMULATOR TRAINING MACHINES, BIKE COMPUTERS, PLASTIC BIKES and more...

	REG	SALE
Bonna Fib Skis	\$120	\$60
Landsem Wood Skis	\$125	\$62
Toppen Wood Skis	\$125	\$62
XC Bindings, Gloves	50% off	
Stearns Life Jackets	\$69.95	\$35
Diamond Superlight Tent	\$330	\$165



6665 St-Jacques
Montréal, Qc
H4B 1V3
(514) 486-1148



(Vendome Metro Station & Bus no. 90)

Activities Night

Tonight, September 21

Union Building

7.30-10.00 pm

This is the perfect time to join a McGill club,
or simply find out more about them.
So far, the clubs being represented are:

Access McGill
AIESEC McGill
Alpha Gamma Delta
Amnesty International
Armenian Students' Association
McGill Blood Drive
McGill Camera Club
Caribbean Students' Society
Censorwatch
Chaplaincy Services
McGill Christian Fellowship
McGill Comedy Players
Community McGill
McGill Daily

McGill El Salvador Committee
McGill Fest
McGill Flying Club
Gamma Phi Beta Sorority
Gay & Lesbians of McGill
McGill Hellenic Association
McGill Intramurals
Iranian Students Association
Kappa Alpha Theta Sorority
Lambda Chi Alpha Fraternity
McGill Campus Legal Aid Centre
Liberal McGill
McGill Observer
Old McGill Yearbook

McGill Outing Club
McGill Personal Finance Club
Phi Delta Theta
Player's Theatre
McGill Program Board
Project Ploughshares
McGill Public Interest Research Group
McGill Student Pugwash
Radio McGill
Sigma Chi Fraternity
McGill Simulation Gamers Guild
McGill Ski Team
Zeta Psi Fraternity

and many more...

A FREE BEER FOR THE FIRST 300 PEOPLE!

MANY DOOR PRIZES!

**DON'T MISS THE LABATT PARTY
IN GERTRUDE'S BEGINNING AT**

10:00



McGill wins Shaughnessy

by Glen Cunningham

The McGill Redmen crushed the Concordia Stingers 31-8 Friday night in the twelfth annual Shaughnessy Cup.

McGill was in full measure for the victory, with solid performances from everyone. Coach Charlie Baillie called it "a complete team effort."

Quarterback Jaimie Crawford unveiled his vast talent with an electrifying performance. He threw three touchdown passes, and came out with a one yard touchdown plunge that proved to be too much for the hapless Stingers.

Crawford hit Rick Falcone for a thirty-nine yard gain inside the Stinger three to set up his touch down plunge. He then came right back with a series of fine passes, setting up Rick Falcone with a 40 yard touchdown strike.

After a Stinger single, McGill moved in front 17-1 when Concordia gave up a safety. Shortly after, Crawford hit "The Falcon" once more with a bomb. Rick scampered 60 yards down the sideline to set up Glenn Miller's eleven yard touchdown reception to push The Redmen in front 23-1 at the half.

The McGill offensive front wall led by All Star Rob Karas was superb all evening. Steve Gedney, Neil Glasberg, Perry Koziris, and Michel Cameroin all contributed tremendously to Crawford's success.

The second half settled down somewhat, as McGill continued their solid game.

The Red and White defensive unit was outstanding, as grand efforts by Vince Collizza and Todd Robinson led the charge.

Crawford hit on another bomb—this time it was Ray Lalonde on the receiving end of a thirty yard scoring toss from

the cranked up "Golden Arm" from Alberta. Rickie Klimas notched a single on the ensuing kickoff, and school was out early.

Concordia responded finally, with a fifteen yard touchdown run.

The Stingers were set up to score on one of the few Redmen errors all evening, when the defense tore apart the Concordia machine with devastating tackling and hard hitting. Joining Todd Robinson (who enjoyed perhaps his greatest game in handling big Nick Benjamin) was nose tackle Kevin Linden who provided a stone wall for the Stingers to bang their heads against all evening.

Don Burns also enjoyed a fine outing in showing that he belongs, and Bob Sauer in his first major test of the season was outstanding as well.

Linebackers Cliff Wilson and Pete Wagner were also instrumental in shutting down the Stingers. Wilson shredded the Concordia blocking throughout the game in an impressive show, and "Wags" thrilled the fans with an awesome performance normally reserved for professionals.

McGill enjoyed a victory within a victory, as the cheerleading squad defeated the Concordia group in a class contest at half time.

The McGill fans should be acknowledged as well for their spirited support that was strictly top-level as well. Come on out to the stadium tomorrow afternoon when the Ottawa Gee Gees visit. Crawford, Falcone, Robinson, Wagner, Karas, Wilson et al can hardly wait. Join in the spirit of the 1983 Redmen Football.

**Sportswriters meeting
Today at 5pm
in B03 of the Union**

Richardson & Benoit Optometrists

J. Henry Richardson Jr. O.D.
Jacques Benoit O.D.

Eye Examinations
Glasses — Contact Lenses

630 Sherbrooke W., Ste. 100
(Between Union & University)
849-1274



A weekend of...
hiking
camaraderie
& pilgrimage
in the area of Lake Massawippi P.Q.

cost: \$30.00
includes transportation
food & lodging

Date: Sept. 30 to Oct. 1st.
for information
call Newman Center.

CREATION AND ITS CRITICS

Answers to common questions and criticisms on the creation movement.

by
Henry M. Morris

Dr. Morris' latest publication - 31 pages - write for a free copy

Creation Science Association
of Canada
P.O. Box 34006
Vancouver, B.C. V6J 4M1

Make History!

The McGill Daily needs an archivist to neatly file this year's newspapers for posterity and assemble mail-outs to student newspapers across Canada.

If you are interested in the job, please contact Suzy at the Daily office in Union B03. The position includes a modest (very) honoraria.

McGILL HELLENIC ASSOCIATION "DIAMIDIS KOMNINOS"

Welcomes all new and returning Greek students and is inviting them to its first
"OYZOV MEZEDAKIA PARTY"

At the University Centre, Rm 107
Friday September 23, 7 pm.

SUPERSCHOOL OPENING INFLATION BEATERS

Save up to **50%**

	Reg.	Special
McGill Books.....	\$6.49	\$3.69
Loose Leaf Binders.....	\$1.98	\$.97
Duotang Covers.....	\$.39	\$.17
Hilroy Exercise Books.....	4/\$.85	
Coiled Exercise Books 100 pages.....	\$.79	
Combination Locks.....	\$.99	
Bic Pens.....	3/\$.89	3/\$.49
200 Loose Leaf Sheets (limit three per customer).....	\$.99	

McGILL SWEATSHIRTS

at discount prices

A. GOLDSTEIN, PHARMACIST

The Students' Pharmacy

455 Sherbrooke West 849-6019

Sale ends Saturday, September 24

**GET INTO THE
McGILL SPIRIT
and
SPARE SOME OF
YOUR FREE TIME FOR**

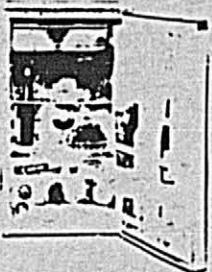


September 30 - October 2

Name:
Tel. no.

Please drop off this form at Room 105,
Burnside Hall. For information, call
392-4250

GET A FRIDGE FOR YOUR ROOM



2 cu. ft. 189.00
4 cu. ft. 259.00
5.2 cu. ft. 279.00

**NO TAX. FREE
DELIVERY
PHONE 731-3349
FOR INFO.**

McGILL INSTRUCTIONAL ATHLETICS

FALL SEMESTER

The Instructional Program is an opportunity to use the Athletic Facilities and to acquire or improve athletic skills. Members of the staff of the Department of Athletics, as well as qualified part-time instructors, will teach in the program.

Courses are open to all FULL-TIME MCGILL STUDENTS as well as STAFF, FACULTY and GRADUATES holding a gym membership card (available in the General Office of the Currie Gym.)

• In many courses space is limited. First come, first served. • There will be absolutely no one admitted to a class once it is full • At registration there will be a limit of two courses per person • All courses are co-ed unless otherwise indicated • You must register in person with an I.D. card or gym membership card • Classes start the week of September 26 unless otherwise indicated.

REGISTRATION Wednesday, September 21st, 1983

Sir Arthur Currie Memorial Gymnasium

475 Pine Avenue West 18:00 hrs.

Don't forget your I.D. card • Save this ad and bring it to registration.

Course	Fee	Day	Time	No. of Weeks	Golf				
Dance:									
Ballet I	\$22.00	Mon. & Wed.	12:00-13:30	10	Skating I (begins week of October 11)	\$8.00	Mon.	15:00-16:00	6
Ballet II	\$22.00	Tues. & Thurs.	19:00-20:30	10	Skating II (begins week of October 11)	\$8.00	Wed.	14:30-15:30	6
Modern I	\$22.00	Tues. & Thurs.	20:30-22:00	10	Yoga I	\$8.00	Fri.	09:00-10:00	6
Jazz I	\$20.00	Mon. & Wed.	17:00-18:30	10		\$12.00	Wed.	14:00-15:30	8
	\$20.00	Tues. & Thurs.	12:00-13:30	10		\$12.00	Thurs.	14:00-15:30	8
	\$20.00	Tues. & Thurs.	13:30-15:00	10		\$12.00	Sat.	09:30-11:30	8
	\$20.00	Tues. & Thurs.	17:00-18:30	10		\$12.00	Tues.	08:00-09:30	8
	\$20.00	Wed. & Fri.	12:00-13:30	10					
Jazz II	\$20.00	Mon. & Wed.	18:30-20:00	10	Yoga II	\$12.00	Mon. & Wed.	17:30-18:45	8
	\$20.00	Tues. & Thurs.	18:30-20:00	10	Hockey I	\$12.00	Mon. & Wed.	19:00-20:15	8
Aerobic Dance Fitness	\$15.00	Mon. & Wed.	10:30-11:30	8	Hockey II (begins week of October 11)	\$12.00	Tues. & Thurs.	17:00-18:15	8
	\$15.00	Mon. & Wed.	12:00-13:00	8	Equestrian (Equitalian Elysée, Pierrefonds)	\$12.00	Tues. & Thurs.	18:30-19:45	8
	\$15.00	Mon. & Wed.	13:00-14:00	8		\$20.00	Tues.	15:45-17:00	8
	\$15.00	Mon. & Wed.	16:00-17:00	8		\$20.00	Thurs.	15:45-17:00	8
	\$15.00	Mon. & Wed.	17:00-18:00	8					
	\$15.00	Mon. & Wed.	18:00-19:00	8	Get Fit	\$10.00	Mon. & Wed.	16:30-17:30	6
	\$15.00	Tues. & Thurs.	11:00-12:00	8		\$10.00	Tues. & Thurs.	08:15-09:15	8
	\$15.00	Tues. & Thurs.	12:00-13:00	8	Runners' Clinic	\$8.00	Wed.	12:00-13:30	4
	\$15.00	Tues. & Thurs.	15:00-16:00	8		\$8.00	Sat.	10:00-11:30	4
	\$15.00	Tues. & Thurs.	16:00-17:00	8	Weight Training (co-ed)	\$10.00	Mon.	09:00-10:30	5
	\$15.00	Tues. & Thurs.	17:30-18:30	8		\$10.00	Tues.	10:00-11:30	5
	\$15.00	Tues. & Thurs.	18:00-19:00	8		\$10.00	Tues.	18:00-19:30	5
Social I	\$14.00	Mon.	19:00-20:30	10		\$10.00	Wed.	18:00-19:30	5
	\$14.00	Wed.	19:00-20:30	10		\$10.00	Fri.	14:30-16:00	5
	\$14.00	Wed.	20:30-22:00	10	(women only)	\$10.00	Thurs.	18:00-19:30	5
Folk Dance	\$12.00	Fri.	14:00-15:00	8	Workout	\$16.00	Mon. & Wed.	18:00-19:00	8
Tap	\$10.00	Fri.	14:15-15:30	8	Total Workout (pay-as-you-go)	\$1.00	Tues. & Thurs.	12:00-13:00	10
Racquets						(per class)			
Squash I	\$8.00	Mon.	08:30-09:45	5		\$1.00	Tues. & Thurs.	17:00-18:00	10
	\$8.00	Mon.	10:15-11:30	5		(per class)			
	\$8.00	Mon.	14:30-15:45	5	Aquatics				
	\$8.00	Tues.	08:30-09:45	5	Red Cross Program	\$10.00	Mon.	19:00-20:00 (C)	6
	\$8.00	Tues.	10:15-11:30	5	beginners/learn to swim	\$10.00	Tues.	19:00-20:00 (C)	6
	\$8.00	Tues.	14:30-15:45	5	(yellow, orange, red R.C.)	\$10.00	Wed.	19:00-20:00 (C)	6
	\$8.00	Wed.	08:30-09:45	5		\$10.00	Thurs.	18:45-19:45 (C)	6
	\$8.00	Wed.	10:15-11:30	5		\$10.00	Sat.	10:00-11:00 (W)	6
	\$8.00	Wed.	14:30-15:45	5	Maroon & Blue (junior level)	\$10.00	Tues.	20:00-21:00 (W)	6
	\$8.00	Thurs.	08:30-09:45	5		\$10.00	Fri.	14:00-15:00 (W)	6
	\$8.00	Thurs.	10:15-11:30	5		\$10.00	Sat.	09:00-10:00 (W)	6
	\$8.00	Thurs.	14:30-15:45	5	Green, Grey, White (intermediate & senior level)	\$12.00	Tues.	20:00-21:30 (W)	7
	\$8.00	Fri.	08:30-09:45	5	Stroke Improvement	\$12.00	Sat.	09:00-10:30 (W)	7
	\$8.00	Fri.	10:15-11:30	5		\$10.00	Tues.	20:00-21:00 (C)	6
	\$8.00	Fri.	14:30-15:45	5		\$10.00	Thurs.	20:00-21:00 (W)	6
	\$8.00	Sat.	09:15-10:30	5		\$10.00	Fri.	14:00-15:00 (W)	6
	\$8.00	Sat.	10:45-12:00	5		\$10.00	Sat.	10:00-11:00 (W)	6
Squash II (1/2 hr. sessions)	\$10.00	Mon.	(b/wm) 12:15-15:15	2	Swim Fit	\$14.00	Mon. & Wed.	20:00-20:45 (C)	7
	\$10.00	Tues.	(b/wm) 19:00-22:00	2		\$14.00	Tues. & Thurs.	12:00-12:45 (C)	7
	\$10.00	Wed.	(b/wm) 13:00-16:00	2		\$14.00	Wed. & Fri.	13:00-13:45 (W)	7
	\$10.00	Thurs.	(b/wm) 19:00-22:00	2		\$14.00	Sat.	09:00-10:00 (W)	7
	\$10.00	Fri.	(b/wm) 12:15-15:15	2	Synchro Swim/Star Program	\$10.00	Mon.	19:30-20:45 (W)	6
(begins Oct. 16)	\$10.00	Sun.	(b/wm) 10:45-13:45	2		\$10.00	Wed.	19:30-20:45 (W)	6
Tennis I	\$8.00	Mon.	11:00-12:00	6		\$10.00	Sat.	09:00-10:15 (W)	6
	\$8.00	Mon.	15:00-16:00	6	Esso Swim-Speed Tech.	\$12.00	Mon. & Wed.	18:00-18:45 (C)	6
	\$8.00	Tues.	11:00-12:00	6	Diving	\$12.00	Mon.	19:00-20:00 (C)	7
	\$8.00	Tues.	13:00-14:00	6	(1 metre, springboard)	\$12.00	Tues.	19:00-20:00 (C)	7
	\$8.00	Tues.	14:00-15:00	6	F.I.N.A. dives	\$12.00	Wed.	19:00-20:00 (C)	7
	\$8.00	Wed.	09:00-10:00	6		\$12.00	Thurs.	18:45-19:45 (C)	7
	\$8.00	Wed.	11:00-12:00	6	Swimnastics/Aquacises	\$10.00	Tues. & Thurs.	12:00-12:30 (C)	6
	\$8.00	Wed.	14:00-15:00	6	Skin Diving	\$14.00	Tues.		6
	\$8.00	Thurs.	09:00-10:00	6			(Classroom)	18:00-18:30 (C)	
(begins Oct. 15)	\$8.00	Sat.	11:00-13:00	6			(Pool)	18:30-20:00 (C)	
(begins Oct. 15)	\$8.00	Sat.	15:00-17:00	6	Certification Courses (Minimum Required)				
	\$8.00	Mon.	11:00-12:00	6	Dual Instructor	\$65.00	Fri.		10
Tennis II (Indoors)	\$40.00	Fri.	15:00-17:00	6	(leaders T.B.A.)		(Classroom)	16:30-18:00 (W)	
(Rockland Sport, St. Laurent)					& materials		(Pool)	18:00-19:30	
Badminton I	\$8.00	Mon.	11:00-12:00	6	National Lifeguard (pool option)	\$75.00	Wed.		10
	\$8.00	Tues.	14:00-15:00	6			(Classroom)	18:45-20:45 (C)	
	\$8.00	Fri.	09:00-10:00	6			(Pool)	20:45-22:45	
(begins Oct. 15)	\$8.00	Sat.	12:00-13:00	6	*S.C.U.B.A.	\$6.00	Thurs. & Fri.		7
	\$8.00	Mon.	13:00-14:00	6	*(registration fee for screen test)		(Classroom)	18:30-19:45 (C)	
Badminton II	\$8.00	Wed.	09:00-10:00	6			(Pool)	19:45-21:45	
Table Tennis	\$5.00	Fri.	14:30-15:30	4	Bronze Medallion	\$20.00	Mon.		7
	\$5.00	Fri.	15:30-16:30	4		(plus exam fee)	(Classroom)	20:00-21:00 (C)	
Racquetball (Club 230, Dorval)	\$25.00	Fri.	15:00-16:30	6			(Pool)	21:00-22:30	
Martial Arts					Bronze Cross	\$20.00	Tues.		7
Aikido	\$16.00	Tues. & Fri.	17:00-19:00	10		(plus exam fee)	(Classroom)	20:00-21:00 (C)	
Shorinjiryu I	\$15.00	Mon. & Wed.	19:00-20:30	10			(Pool)	21:00-22:30	
Shorinjiryu II	\$15.00	Mon. & Wed.	20:30-22:00	10	Award of Merit	\$25.00	Thurs.		8
Shotokan I	\$15.00	Tues. & Thurs.	15:00-16:30	10		(plus exam fee)	(Classroom)	19:15-20:15 (W)	
Shotokan II	\$15.00	Tues. & Thurs.	16:30-18:00	10			(Pool)	20:15-21:45	
Samurai I	\$15.00	Tues. & Thurs.	08:10-09:40	10	Distinction	\$25.00	Thurs.		8
Samurai II	\$15.00	Mon. & Wed.	08:10-09:40	10		(plus exam fee)	(Classroom)	19:45-20:45 (C)	
Judo	\$16.00	Mon. & Wed.	17:30-20:00	10			(Pool)	21:00-21:45	
Women's Self-Defense	\$12.00	Sat.	10:00-12:00	8					
Varia									
Archery	\$10.00	Mon.	15:00-16:00	6	*Scuba Screen Test — Sept. 29th at 18:30 — Currie Pool, plus \$120 on completion of test.				
	\$10.00	Wed.	14:00-15:00	6	(C) CURRIE POOL				
Fencing I	\$14.00	Tues. & Thurs.	18:30-19:30	10	(C) WESTON POOL				
	\$14.00	Tues. & Thurs.	19:30-20:30	10					
Fencing II	\$14.00	Tues. & Thurs.	20:30-21:30	10					